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# A Proposed Model of Connectivism Learning Using Cloud-based Virtual Classroom to Enhance Information Literacy and Information Literacy Self-efficacy for Undergraduate Students

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## Abstract

Learning in a digital era has been changed into a new paradigm since the development of network and communication technology, such as cloud computing, so learners have to interact with massive amount of the information. Thus, information and personal skills play vital roles in success of learning. Connectivism is considered a new online learning pedagogy giving emphasis to an interactive learning in an online context. The focus of connectivism pedagogy would be on the challenge for learners to improve information literacy and self-efficacy. Virtual Classroom is one of the most powerful tools to conduct an effective online learning. With the change of learning pedagogy, virtual classroom is employed to improve the social interaction capability by using cloud-based tools and platform. The purpose of this research was to propose a model of connectivism learning using cloud-based virtual classroom to enhance information literacy and information literacy self-efficacy for undergraduate students. The model was evaluated by 3 educational technology experts and 2 information literacy experts. The data was analysed using content analysis and descriptive statistics. The research results were as follows: (1) the proposed model has 5 components, namely Virtual Classroom, Cloud-based Tools, Role of Teacher, Learning Resources and Learning Assessment. (2) The model of connectivism learning consists of 4 steps including: (1) Aggregating, (2) Remixing, (3) Repurposing, and (4) Feed Forward. The overall model evaluation scores are very suitable.

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*Keywords:* Connectivism; Virtual Classroom; Cloud Service; Information Literacy; Information Literacy Self-efficacy

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## 1. Introduction

The Blueprint for ASEAN Socio-Cultural Community (ASCC Blueprint) has focused on narrowing the Development Gap and enhancing the well-being of the peoples of ASEAN by promoting and investing in education

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and life-long learning. The Ministry of Education (MOE) has announced a strategic plan to follow the ASCC Blueprint to enhance Thai people's lifelong learning by using ICT, and creating equitable learning opportunity. In the digital age, learners need an ability to find, access, manage, evaluate and create the information in digital environment surrounded by a massive amount of information. Thus, information literacy has been considered as a core competency to improve learners' lifelong learning quality (SCONUL, 1999; UNESCO, 2008). From the most recent reports on information literacy in Thailand, it was found that the information literacy scores of Thai undergraduate learners were in a middle level (Sirichai, 2010), and in some university, learner's information literacy scores were in a low level (Sirirat, 2012). Since Higher Education requires a higher level of information literacy scores (UNESCO, 2008), Thai undergraduate learners need to develop their information literacy skills. Furthermore, most of learners who succeed in learning should have both confidence and ability. Information literacy research was changed into a new dimension, since Neely (2002) has started to study on information literacy in sociological and psychological aspects. A new psychological factor called information literacy self-efficacy (ILSE) was introduced into information literacy research field by Kurbanoglu et al. (2006). As for the meaning, Information Literacy Self-efficacy is a person's belief in his/her ability to succeed in specific information tasks such as finding, accessing, managing, evaluating and creating information. Open learning environment has been considered a suitable learning environment to develop information literacy and self-efficacy (Bandura, 1977; Taweechart, 2002), so, the new learning theory for digital age called "Connectivism" was proposed by Siemens (2005). This learning theory tries to describe a learning that occurs on the network, and is used to design the first massive online open course (MOOC). After the widely discourse on Connectivism, we can conclude that Connectivism is a learning concept to conduct an online open learning environment, focusing on the learning activities, such as inquiring, resourcing, organizing, criticizing and reconstructing an information (Kop and Hill, 2008; Darrows, 2009; Bell, 2011). To create an online open learning environment, we need a technology to support an online interaction, sharing and connecting between nodes of information (such as learners, experts, communities, websites). From the Gardner's technology hype cycle 2012, cloud computing was a technology on the peak of inflated expectations, and some of researchers started using cloud-based tools to support learning (Behrend et al., 2011; .Aldakheel, 2011; Denton, 2012). Many researchers have supported that cloud computing is suitable for paperless learning environment, and can facilitate most of online learning activities, such as information managing, document sharing, communicating and collaborating. However, the varieties of cloud-based tools can make learners confused in using them, so we need a system that can centralize these tools into practice. Virtual classroom is one of the most well-known systems to simulate environment from a real classroom into a virtual learning environment, and can be equipped with a lot of learning support tools. With the change of learning pedagogy and context, virtual classroom is considered to improve the social interaction capability (Horton, 2012). Thus, the researchers have proposed to improve social interaction capability of a virtual classroom by integrating cloud-based tools into activities section of virtual classroom. In order to fill the gap, the researchers are interested in developing the model of connectivism learning using cloud-based virtual classroom to enhance information literacy and information literacy self-efficacy for undergraduate students.

## 2. Methodology

This research is divided into 2 phases which are (1) The study on related theories, research, and experts' opinion, (2) Evaluation on the proposed model.

### 2.1 Phase 1: Study on a related theories, research, and experts' opinion.

The study in this phase includes the study of theories and research on the Connectivism, Virtual Classroom, Cloud Computing, Information Literacy and Information Literacy Self-efficacy, to be used as guidelines in determining learning processes and components of the model. The model will be designed after the reviewing of document, then an interview will be conducted to get an opinion towards the model from seven experts.

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